

**FUEL CELL STACK MONITORING AND SYSTEM CONTROL****Abstract of the Invention**

5 A control method for monitoring a fuel cell  
stack in a fuel cell system in which the actual voltage  
and actual current from the fuel cell stack are  
monitored. A preestablished relationship between voltage  
and current over the operating range of the fuel cell is  
established. A variance value between the actual  
measured voltage and the expected voltage magnitude for a  
10 given actual measured current is calculated and compared  
with a predetermined allowable variance. An output is  
generated if the calculated variance value exceeds the  
predetermined variance. The predetermined voltage-  
current for the fuel cell is symbolized as a polarization  
15 curve at given operating conditions of the fuel cell.  
Other polarization curves may be generated and used for  
fuel cell stack monitoring based on different operating  
pressures, temperatures, hydrogen quantities.